

Comparison of the extracellular polymeric substances of *Candida albicans* and *Candida dubliniensis* biofilms

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Candida albicans and *Candida dubliniensis* live as benign commensal organisms in the oral cavity of both healthy and unhealthy individuals behaving, under certain conditions, as opportunistic pathogens, causing candidiasis. These two *Candida* species have been mismatched for years, but recently *Candida dubliniensis* was recovered from the mouth of immunosuppressed patients and identified as a different species. Candidiasis is usually related with the *Candida* capacity of forming biofilms on inert or biological surfaces, being this phenotype associated with infections. Biofilms are complex structures of microbial communities attached to a surface, in which microorganisms are embedded in a matrix of extracellular polymeric substances (EPS), composed mainly by proteins and polysaccharides. The biofilm matrix holds the potential of determining possible mechanisms of resistance of *Candida* biofilms. Several factors are known as affecting the production of EPS, namely, growth medium, growth phase and substratum.

This study focused the influence of artificial saliva growth medium in the composition of EPS of biofilms formed by both *Candida albicans* and *Candida dubliniensis* strains.

Biofilms of one strain of *Candida albicans* and two strains of *Candida dubliniensis* were formed in an artificial saliva growth medium (ASGM) and compared with those formed in Sabouraud Dextrose Broth (SDB) and analysed after 48h. The differences between the EPS of biofilms were evaluated (after sonication) in terms of proteins (quantified using the BCA protein assay kit) and polysaccharides (quantified using the phenol-sulphuric method). Proteins were also analysed by SDS-PAGE.

In SDB the amount of proteins and polysaccharides in the EPS of biofilms formed by *Candida albicans* was lower than in the EPS of biofilms formed by *Candida dubliniensis* strains. In the presence of ASGM the amount of proteins and polysaccharides was similar among the EPS of biofilms of *Candida albicans* and one of the *Candida dubliniensis* strains and was lower in biofilms of *Candida albicans* than in biofilms of the other *Candida dubliniensis*. Analysis of protein profiles obtained by SDS-PAGE showed that all strains present similar patterns independently of the medium of biofilm formation.

Biofilms formed in ASGM originated different amounts of EPS, either in terms of polysaccharides or proteins, compared to the ones formed in SDB. Differences were also found in the profile of extracellular proteins of each strain, depending on the medium.